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No. III.

IMPROVED SLIDE TO THE RULING MACHINE USED BY ENGRAVERS.

The LARGE SILVER MEDAL *was this session presented to Mr. W.* PALMER, 18, *Clifton-street, Finsbury, for his improved Slide to the Ruling Machine used by Engravers. The following communication has been received from him on the subject, and one of his slides has been placed in the Society's Repository.*

18, Clifton-street, Finsbury-square.
March 18, 1826.

SIR,

CONSIDERING that the ruling machine is of as much importance to engravers, and the advancement of their art, as the steam-engine is to the manufacturer, I venture to call the attention of the Society of Arts to an improvement which I have made in that part of the ruling-machine called the slide and carriage, which, I trust, will be found to surpass all others for durability, freedom, and simplicity, and also for economy.

The truth of those which are used at present depends upon springs, and for their freedom upon friction rollers. These are parts which appear to me highly objectionable, where a steady, regular, and uniform motion, is absolutely necessary; the springs being more or less affected by temperature, and subject to relaxation from the constant pressure that is upon them; and friction rollers, by multiplying the action and dependencies, each becomes a source of error. My object has been to avoid these evils, by simplifying the machine as much as possible, and to construct one upon such a principle that the bearings should be natural, and always inclined to keep in order by their own action. It affords me pleasure to state, that the following artists, viz. Mr. Turrell, Mr. Bacon, and Mr. Lowry, have expressed their approbation of my slide, and that I have found it answer to my perfect satisfaction, after many months' practice.

I am, Sir,
&c. &c. &c.
WM. PALMER.

A. Aikin, Esq.
Secretary, &c. &c.

P.S. The principle of my slide is that of leverage; the carriage slides upon a cast iron *v* surface, which forms its prolonged centre of motion; on the left of this is a small projecting piece of brass, attached to the carriage, and kept up against an over-hanging straight edge, by means of the weight on the opposite side, which weight acts as a lever, and will follow up and make good any inaccuracies occasioned by friction and frequent use. By this slide lines of various lengths may be ruled; and though continued use will impair the straight edge, yet the imperfection will not be visible, for as you begin a plate so you must end it, the leverage being always the same, and the bearing always uniform.

The price of a slide thirty-six inches long, made upon the old principle, the maker says will cost **20***l.*; and I should be happy to make one of the same length upon my method for **7***l.* or **8***l.*

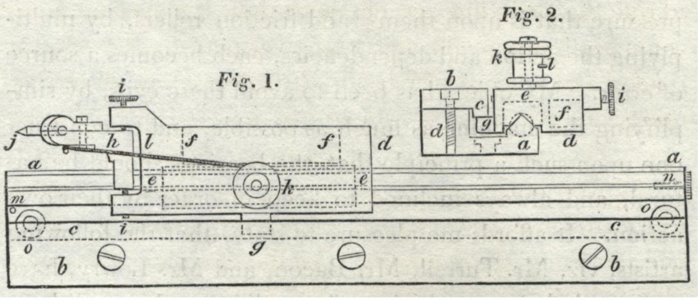

Fig. 2.

Fig. 1.

Fig. 1 is a bird's eye view, and fig. 2 an end view of the slide; *a a* the ruling bar, made angular like the off bar of many of the iron lathe beds; a strong iron bar *b b*, having a straight under surface along *c c*, is screwed on the iron bed *d* (which is in one piece with the bar *a*), and adjusted so as to be perfectly parallel with the angular surface *a a*; *d d* the carriage; it is cast hollow on the under side, over the bar *a a*, as shown by the dotted parallelogram between *e* and *e* fig. 1, so that only the two ends *e* and *e* touch the bar, and are notched so as to fit and slide freely along it; in the end view, also, the dotted lines under *e* show the hollow; another hollow *f f* may also be cast (at the will of the workman) to be filled with lead, which increases the overhanging weight. A piece *g* projects from the middle of the carriage, and is made flat on the top to slide against the under surface *c c* of the bar *b*, so that the carriage has three bearings, the one *g* upwards, and the two *e e* downwards, the weighted side *f f* keeping the bearing *g* always in contact with the under surface of *c c*, on which it slides; *h*, fig. 1, the swinging arm, *i i* its two centres, and *j* the etching point, *k* a roller knob, by which the carriage may be moved along the bar, and by turning it, the string *b* raises the etching point so that it may be slid back again to rule the next line; a pin *m* prevents the carriage from coming off at one end, and a screw *n*, put in after the carriage is slid into its place, stops it from coming off at the other; *o o* two holes by which it is screwed to its place for use. This carriage cannot be knocked off by any accident, or tilt over to damage the plate, as when in use it is as low as it can come, and it cannot be taken from its place without removing the screw *n*. As the surfaces of copper-plates are not perfect planes, and may also be a little out of parallelism with the ruling bar, it becomes necessary to make the swing centres *i i* correctly at right angles to the ruling bar *a a*, and also horizontal or parallel with the copper plate, then the little variations in the surface of the copper will not produce any difference in the distance of the lines; but if the centres *i i* were not at right angles, every inequality in the copper would produce a corresponding difference in the distance or straightness of the lines.